AMENDMENTS TO THE CLAIMS

1-16. **(Canceled)**

17. **(New)** A β-amyloid modulator compound comprising a formula:

$$A\text{-}(Y)\text{-}Xaa_1\text{-}Xaa_2\text{-}Xaa_3\text{-}Xaa_4\text{-}Xaa_5\text{-}(Z)\text{-}B \quad (IV)$$

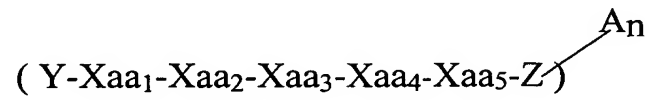
wherein
Xaa_1 is a D-leucine structure;
Xaa_2 is a D-valine structure;
Xaa_3 is a D-phenylalanine structure;
Xaa_4 is a D-phenylalanine structure;
Xaa_5 is a D-leucine structure;
Y, which may or may not be present, is a peptidic structure having the formula $(Xaa)_a$, wherein Xaa is any amino acid structure and a is an integer from 1 to 15;
Z, which may or may not be present, is a peptidic structure having the formula $(Xaa)_b$, wherein Xaa is any amino acid structure and b is an integer from 1 to 15;
A, which may or may not be present, is a modifying group attached directly or indirectly to the amino terminus of the compound; and
B, which may or may not be present, is a modifying group attached directly or indirectly to the carboxy terminus of the compound;
Xaa_1, Xaa_2, Xaa_3, Xaa_4, Xaa_5,Y, Z, A and B being selected such that the compound binds to natural β-amyloid peptides or modulates the aggregation or inhibits the neurotoxicity of natural β-amyloid peptides when contacted with the natural β-amyloid peptides.

18. **(New)** A β-amyloid modulator compound comprising a formula:

A- D-leucine- D-valine- D-phenylalanine- D-phenylalanine- D-leucine-B

wherein A, which may or may not be present, is a modifying group attached directly or indirectly to the amino terminus of the compound; and
B, which may or may not be present, is a modifying group attached directly or indirectly to the carboxy terminus of the compound;
A and B being selected such that the compound binds to natural β-amyloid peptides or modulates the aggregation or inhibits the neurotoxicity of natural β-amyloid peptides when contacted with the natural β-amyloid peptides.

19. **(New)** A β-amyloid modulator compound comprising a formula:



wherein
Xaa_1 is a D-leucine structure;
Xaa_2 is a D-valine structure;
Xaa_3 is a D-phenylalanine structure;
Xaa_4 is a D-phenylalanine structure;
Xaa_5 is a D-leucine structure;
Y, which may or may not be present, is a peptidic structure having the formula $(Xaa)_a$, wherein Xaa is any amino acid structure and a is an integer from 1 to 15;
Z, which may or may not be present, is a peptidic structure having the formula $(Xaa)_b$, wherein Xaa is any amino acid structure and b is an integer from 1 to 15;
A, which may or may not be present, is a modifying group attached directly or indirectly to the amino terminus of the compound; and
n is an integer from 1 to 15;
Xaa_1, Xaa_2, Xaa_3, Xaa_4, Xaa_5,Y, Z, A and n being selected such that the compound binds to natural β-amyloid peptides or modulates the aggregation or inhibits the neurotoxicity of natural β-amyloid peptides when contacted with the natural β-amyloid peptides.

20. **(New)** The compound of any one of claims 17, 18 or 19, wherein A is an alkyl group.

21. **(New)** The compound of any one of claims 17 or 18, wherein at least one of A and B is an alkyl group.

22. **(New)** A pharmaceutical composition comprising a therapeutically effective amount of a compound of any one of claims 17, 18 or 19 and a pharmaceutically acceptable carrier.

23. **(New)** The compound of any one of claims 17, 18, or 19, coupled to a modulator, wherein the modulator is capable of being transported across the blood-brain barrier (BBB).

24. **(New)** A method for detecting the presence or absence of natural β-amyloid peptides in a biological sample, comprising:

contacting a biological sample with a compound of any one of claims 17, 18 or 19, wherein the compound is labeled with a detectable substance; and

detecting the compound bound to natural β-amyloid peptides to thereby detect the presence or absence of natural β-amyloid peptides in the biological sample.

25. **(New)** The method of claim 24, wherein the compound and the biological sample are contacted *in vitro*.

26. **(New)** The method of claim 24, wherein the compound is contacted with the biological sample by administering the compound to a subject.

27. **(New)** The method of claim 24, wherein the compound is labeled with radioactive technetium or radioactive iodine.

28. **(New)** A method for treating a subject for a disorder associated with β-amyloidosis, comprising:

administering to the subject a therapeutically effective amount of a compound of any one of claims 17, 18 or 19 such that the subject is treated for a disorder associated with β-amyloidosis.

29. **(New)** The method of claim 28, wherein the disorder is Alzheimer's disease.